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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/700,558	11/05/2003	Youhei Toyoshima	062709-0116	1042
22428	7590	03/09/2006	EXAMINER	
FOLEY AND LARDNER LLP SUITE 500 3000 K STREET NW WASHINGTON, DC 20007			LUKS, JEREMY AUSTIN	
			ART UNIT	PAPER NUMBER
			2837	

DATE MAILED: 03/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

EL

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/700,558		TOYOSHIMA, YOUHEI	
	<b>Examiner</b>		<b>Art Unit</b>	
	Jeremy A. Luks		2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11/5/2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>11/5/03, 1/28/04</u>  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Priority*

1. Should applicant desire to obtain the benefit of foreign priority under 35 U.S.C. 119(a)-(d) prior to declaration of an interference, a translation of the foreign application should be submitted under 37 CFR 1.55 in reply to this action.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Hayashi (4,415,059).

With respect to Claim 1, Hayashi teaches a tubular member (Figure 2, #56) configured to discharge exhaust from a machine having one of an engine or a compressor (Col. 1, Lines 12-15) and attenuate acoustic energy of a first frequency band; and a resonator set (76, 78) configured to attenuate acoustic energy of a second frequency band, which is different from the first frequency band and modulates the first frequency band (Col. 3, Lines 60-68; Col. 4, Lines 1-5).

With respect to Claim 8, Hayashi teaches a resonator set (Figure 2, #72, 74) arranged at an exhaust upstream side (66) in a muffler (44) connected to an end of a tubular member (56).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
4. Claims 2, 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi (4,415,059) in view of Bourne (2,297,046).

With respect to Claim 2, Hayashi is relied upon for the reasons and disclosures set forth above. Hayashi fails to disclose a resonator set comprising at least two resonators; each of the resonators has a first end opening to an inner face of a tubular member and a closed second end; and the resonators have different lengths.

Nevertheless, Bourne discloses a resonator set comprising at least two resonators (Figure 9, #31, 32); each of the resonators has a first end opening (33,34) to an inner face of a tubular member (30) and a closed second end; and the resonators have different lengths.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the muffler of Hayashi with the resonator set of Bourne to make the muffler more compact and inexpensive to produce, while still employing the multiple resonator design.

With respect to Claim 9, Hayashi teaches a resonator set (Figure 2, #72, 74) arranged at an exhaust upstream side (66) in a muffler (44) connected to an end of a tubular member (56).

With respect to Claim 11, Hayashi teaches a resonator set (Figure 2, #72, 74) that is formed on a front end plate of the muffler (44).

5. Claims 3, 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi (4,415,059) in view of Coulon (GB 2 365 066 A).

With respect to Claim 3, Hayashi is relied up on for the reasons and disclosures set forth above. Hayashi fails to disclose all of the limitations described in the claim. Nevertheless, Coulon discloses a resonator set comprising at least one resonator (Figure 7, 26); and the resonator (26) has a first end opening (28) to an inner face of a tubular member (Figure 10, #10) and a closed second end including a plane that is not in parallel with the virtual plane of the first end (See overall configuration of Figure 7).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the muffler of Hayashi with the resonator set of Coulon to accommodate the significant pressure and temperature increases from a turbo-charged engine, while maintaining an effective level of noise suppression.

With respect to Claim 10, Hayashi teaches a resonator set (Figure 2, #72, 74) arranged at an exhaust upstream side (66) in a muffler (44) connected to an end of a tubular member (56).

With respect to Claim 12, Hayashi teaches a resonator set (Figure 2, #72, 74) that is formed on a front end plate of the muffler (44).

6. Claims 4 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi (4,415,059) in view of Burdisso (6,112,514).

With respect to Claim 4, Hayashi is relied up on for the reasons and disclosures set forth above. Hayashi fails to disclose all of the limitations described in the claim. However, Burdisso discloses a resonator set (Figure 1, #10) comprising at least one resonator (10); and each end of the resonator (10) is open to an inner face of a tubular member (12).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the muffler of Hayashi with the resonator set of Burdisso to divide the inlet acoustic energy, then reintroduce the energy into the engine compartment, where the sound waves will be out of phase with one another, and canceling the remaining acoustic energy produced by the engine, also know as phase cancellation.

With respect to Claim 13, Hayashi teaches a resonator set (Figure 2, #72, 74) arranged at an exhaust upstream side (66) in a muffler (44) connected to an end of a tubular member (56).

7. Claims 5 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi (4,415,059) in view of Bourne (2,297,046), and further in view of De Lank (EP

0445431). Hayashi and Bourne are relied upon for the reason and disclosures set forth above. Hayashi and Bourne fail to describe an absorbing material and scatter preventative part for use in a resonator. Nevertheless, De Lank discloses an absorbing material (Figure 1, #5) and scatter preventative part (2) for use in a resonator.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the muffler of Hayashi and resonator set of Bourne with the noise absorbing material and scatter prevention part of De Lank to increase the noise absorption coefficient of the resonator set, and protect said noise absorption material from becoming dislodged, while still allowing gasses to enter the resonator set.

8. Claims 6 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi (4,415,059) in view of Coulon (GB 2 365 066 A), and further in view of De Lank (EP 0445431). Hayashi and Coulon are relied upon for the reason and disclosures set forth above. Hayashi and Coulon fail to describe an absorbing material and scatter preventative part for use in a resonator. Nevertheless, De Lank discloses an absorbing material (Figure 1, #5) and scatter preventative part (2) for use in a resonator.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the muffler of Hayashi and resonator set of Coulon with the noise absorbing material and scatter prevention part of De Lank to increase the noise absorption coefficient of the resonator set, and protect said noise absorption material from becoming dislodged, while still allowing gasses to enter the resonator set.

9. Claims 7 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi (4,415,059) in view of Burdisso (6,112,514), and further in view of De Lank (EP

0445431). Hayashi and Burdisso are relied upon for the reason and disclosures set forth above. Hayashi and Burdisso fail to describe an absorbing material and scatter preventative part for use in a resonator. Nevertheless, De Lank discloses an absorbing material (Figure 1, #5) and scatter preventative part (2) for use in a resonator.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the muffler of Hayashi and resonator set of Burdisso with the noise absorbing material and scatter prevention part of De Lank to increase the noise absorption coefficient of the resonator set, and protect said noise absorption material from becoming dislodged, while still allowing gasses to enter the resonator set.

### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Pertinent arts of record related to acoustic dumpers for exhaust systems are disclosed in the PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy A. Luks whose telephone number is (571) 272-2707. The examiner can normally be reached on Monday-Friday 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula Bradley can be reached on (571) 272-2800 x33. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.




Art Unit: 2837

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jeremy Luks  
Patent Examiner

Art Unit 2837



**Edgardo San Martin**  
**Primary Patent Examiner**